Q1.

An experiment was carried out to examine the effect of temperature on the reaction between sodium thiosulfate and HCl.

a) What product obscures the cross?

Sulfur precipitate

b) Give three precautions taken to ensure it was a fair test

* same cross/ same person observing cross, same conical flask, different thermometers to prevent cross contamination, heat both chemicals in separate containers to required temperature prior to mixing, ensure volumes and concentrations of reagents are the same each time

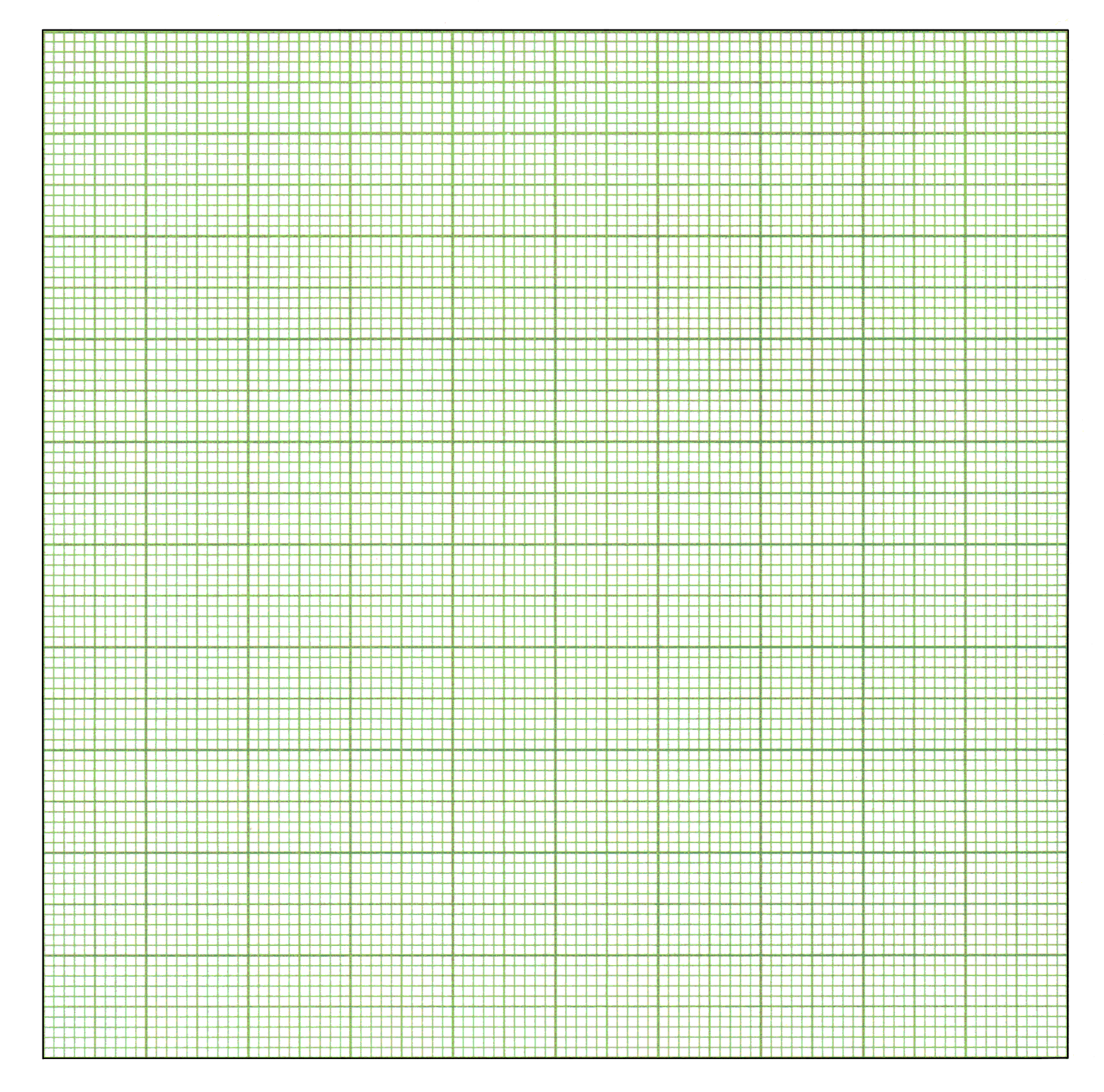
c) As the temperature increased the time taken for the X to disappear decrease

d) Explain why temperature has an effect on rate of reaction increase in number of collisions, increase in number of collisions with sufficient energy to react

e)The following results were recorded. Fill in the values for the rate of reaction.

|  |  |  |
| --- | --- | --- |
| Time taken for x to disappear | Temperature (deg Celsius) | Rate of reaction (1/Time) |
| 55 | 30 | 0.01818 |
| 50 | 40 | 0.02 |
| 43 | 50 | 0.02356 |
| 38 | 60 | 0.02632 |
| 31 | 70 | 0.03226 |
| 22 | 80 | 0.04545 |
| 12 | 90 | 0.08333 |

f) Draw the graph using Time taken vs temperature results.

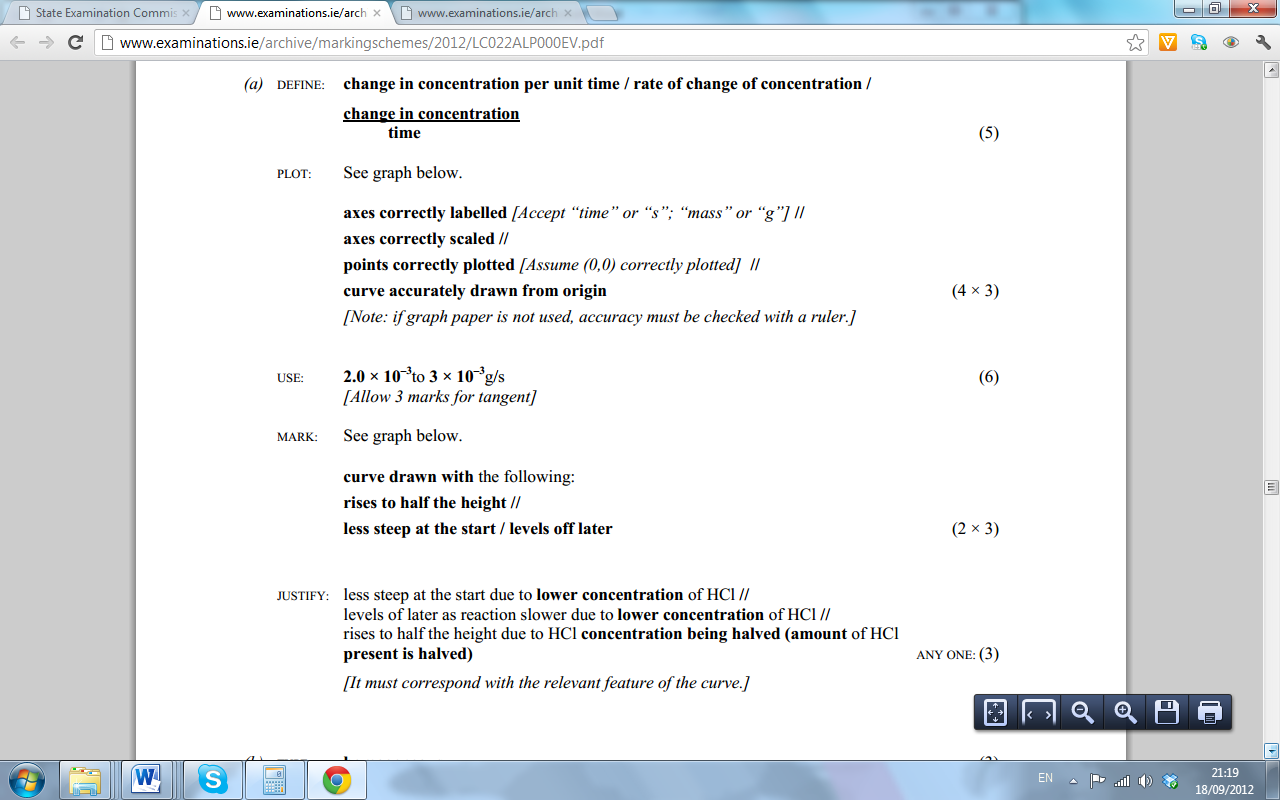


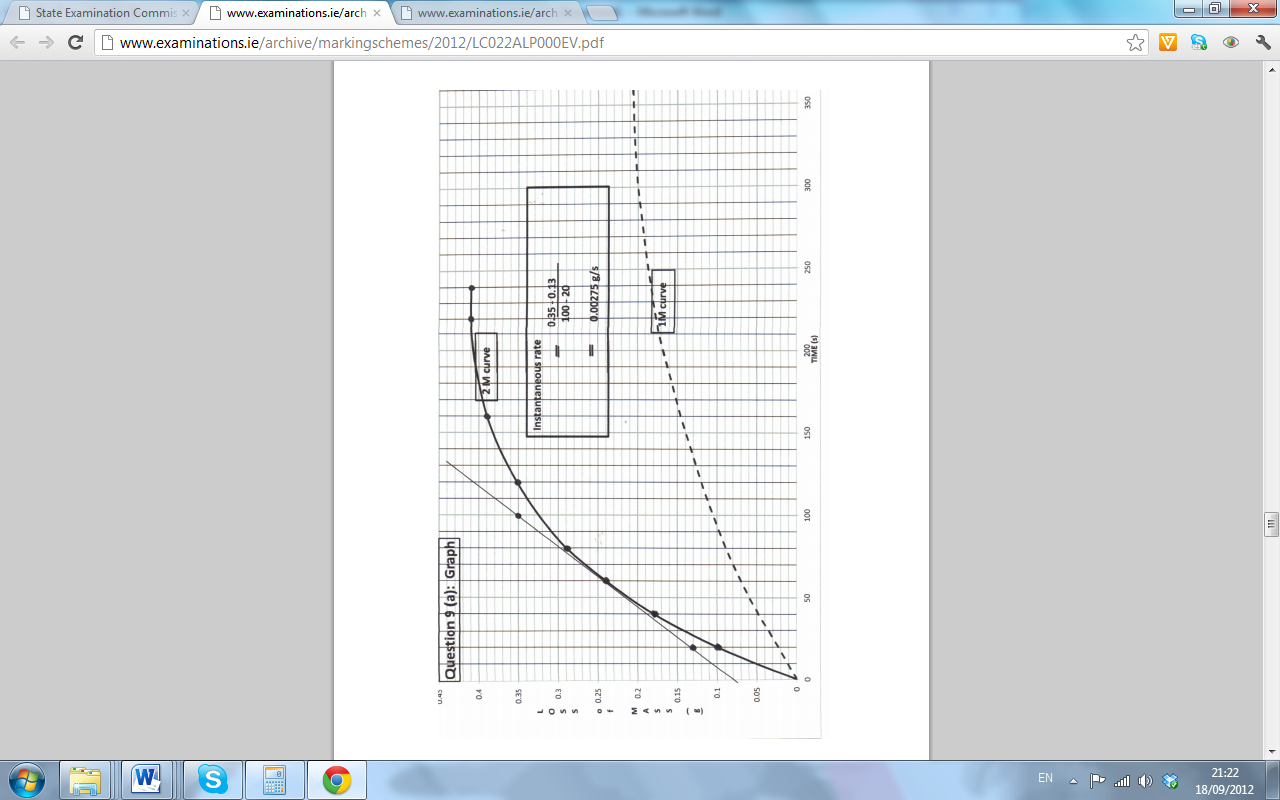
2 marks correct label with units for x-axis, 2 marks for correct label with units for y-axis, 2 marks for plotting correctly

g) Find the instantaneous rate of reaction at 55º Celsius?

Fine slope of line at point 55 degree celsius

Q2.





Q.3.

